

Computer-Numeric-Controlled Programming and Operations Certificate of Development

Program Code: XXX Credit Hours: 20 Contact Hours: 20

Associate Dean: Peter Olson

The North Central Certificate of Development in Computer-Numeric-Controlled Programming and Operations prepares motivated students for work in modern factories, manufacturing plants, and machine shops where computer numerically controlled (CNC) machines are essential pieces of equipment. In the past, workers manually controlled the heavy equipment used to cut, shape, and form products from raw wood and metals. A CNC programmer / operator can now input highly-detailed instructions into a computer system that guides robotic arms and tools to perform precision machining jobs. Skilled CNC programmers or operators are able to improve the efficiency of production and the quality of finished products.

Open Entry / Self-Paced: North Central offers some Computer-Numeric-Controlled Programming and Operations courses in an open-entry (OE) self-paced format. This format enables students to start courses after the normal semester and work at a pace agreed upon by the student and the instructor. Open lab time is scheduled for daytime and evening access to facilitate student work schedules. The college's Mobile Digital Fabrication Lab is designed for CNC activities involving area high schools, employers, and North Central students.

Required Courses

20 Credit Hours

CAM 100	Cam 1: Introduction to CAM programming	1
CAM 110	Cam 2: Operations / Work Holding	1
CAM 120	*OE Cam 3: Tool Development	1
CAM 130	*OE Cam 4: Planning for Materials / Processes	1
CAM 140	*OE Cam 5: Creating 3D Surfaces / Assigning Tools	1
CAM 150	*OE Cam 6: Multiple Set-up Jobs / Pick-Up Locations	1
CNC 102	Introduction to CNC Lathe Theory / Machine Basics	1
CNC 103	Introduction to CNC Mill Theory / Machine Basics	1
CNC 112	Operation and Work Holding—Lathe	1
CNC 113	Operation and Work Holding—Mill	1
CNC 122	CNC Lathe 3: RPM / Feed Rates	1
CNC 123	CNC Mill 3: Spindle Speeds / Feed Rates	1
CNC 132	CNC Lathe 4: On-Board G-Code Edit / Operation	1
CNC 133	CNC Mill 4: On-Board G-Code Edit / Operation	1
CNC 180	CNC Programming, Lathe or Mill Independent Project	1
COM 170	Interpersonal Communication	3
OAS 101	Customer Service	1
OAS 190	Employability Skills	1